What is claimed is:

1. A combustion flame monitoring system, comprising:

at least two photodetectors positioned for receiving light from a combustion flame, each of the at least two photodetectors having a different, overlapping bandwidth for detecting a respective output signal in an ultraviolet emission band; and

a computer for calculating a ratio of integrated intensities for each of the different overlapping bandwidths, and using the ratio of integrated intensities to determine a temperature of the combustion flame temperature.

2. The combustion flam monitoring system of claim 1, wherein the ultraviolet emission band is the OH emission band.

3. A combustion flame monitoring system, comprising:

a multiple element CCD-based spectrophotometer for receiving light from the combustion flame, wherein the multiple element CCD-based spectrophotometer operates to monitor an optical emission spectrum in at least first and second discrete bandwidth ranges and generates a first intensity signal representative of the flame intensity in the first bandwidth range and a second intensity signal representative of the flame intensity in the second bandwidth range; and

a computer for

integrating the first intensity signal to generate a first integrated intensity,

integrating the second intensity signal to generate a second integrated intensity, and

calculating a ratio of integrated intensities of the first and second integrated intensities, and

using the ratio to determine a temperature of the combustion flame.

4. The system of claim 3 wherein the multiple element CCD-based spectrophotometer detects the output signal in an ultraviolet emission band.

5. The system of claim 3 wherein the multiple element CCD-based spectrophotometer detects the output signal in an OH emission band.

6. The system of claim 3 wherein the computer includes a look-up table for using the ratio to determine the combustion flame temperature.

7. The system of claim 3, wherein the first bandwidth range is between 305 and 310 nm and the second bandwidth range is between 310 and 340 nm.

8. The system of claim 7, wherein the ratio of integrated intensities may be expressed as:

$$Ratio = \frac{\int_{310}^{340} I(\lambda)d\lambda}{\int_{305}^{310} I(\lambda)d\lambda}$$

, where I(λ) represents the measured intensity for a wavelength λ.

9. The system of claim 3, wherein the multiple element CCD-based spectrophotometer operates to monitor an optical emission spectrum in at least one bandwidth associated with at least one impurity and generates an impurity signal indicative of the presence or absence of the at least one impurity.

10. The system of claim 9, wherein the at least one impurity includes sodium, sulfur, potassium, calcium, lead, and vanadium.

11. The system of claim 3, wherein the multiple element CCD-based spectrophotometer operates to monitor an optical emission spectrum in at least one bandwidth associated with fluorescence of an odometer taggant coating and generates a taggant fluorescence signal indicative of exposure of the odometer taggant coating to the combustion flame.

12. The system of claim 11, wherein the in at least one bandwidth is 610 nm and the odometer taggant coating comprises europia doped yittria stabilized zirconia (YSZ:Eu).

13. A method for combustion flame monitoring, comprising:

receiving light from a combustion flame by at least two photodetectors, each of the at least two photodetectors having a different, overlapping bandwidth for detecting a respective output signal in an ultraviolet emission band; and

calculating a ratio of integrated intensities for each of the different overlapping bandwidths, and using the ratio of integrated intensities to determine a temperature of the combustion flame temperature.

14. The method of claim 13, wherein the ultraviolet emission band is the OH emission band.

15. A method for combustion flame monitoring, comprising:

receiving light from a combustion flame by a multiple element CCD-based spectrophotometer;

monitoring an optical emission spectrum in at least first and second discrete bandwidth ranges and generates a first intensity signal representative of the flame intensity in the first bandwidth range and a second intensity signal representative of the flame intensity in the second bandwidth range;

integrating the first intensity signal to generate a first integrated intensity;

integrating the second intensity signal to generate a second integrated intensity;

calculating a ratio of integrated intensities of the first and second integrated intensities; and

using the ratio to determine a temperature of the combustion flame.

16. The method of claim 15 wherein monitoring an optical emission spectrum further includes detecting the output signal in an OH emission band.

17. The method of claim 15 wherein using the ratio to determine a temperature of the combustion flame further comprises using a computer look-up table for determining the combustion flame temperature.

18. The method of claim 15, wherein the first bandwidth range is between 305 and 310 nm and the second bandwidth range is between 310 and 340 nm.

19. The method of claim 18, wherein the ratio of integrated intensities may be expressed as:

$$Ratio = \frac{\int_{310}^{340} I(\lambda)d\lambda}{\int_{305}^{310} I(\lambda)d\lambda}$$

, where I(λ) represents the measured intensity for a wavelength λ.

20. The method of claim 15, wherein monitoring an optical emission spectrum further includes:

monitoring an optical emission spectrum in at least one bandwidth associated with at least one impurity; and

generating an impurity signal indicative of the presence or absence of the at least one impurity.

21. The method of claim 20, wherein the at least one impurity includes sodium, sulfur, potassium, calcium, lead, and vanadium.

22. The method of claim 15, further comprising:

monitoring, by the multiple element CCD-based spectrophotometer, an optical emission spectrum in at least one bandwidth associated with fluorescence of an odometer taggant coating; and

generating a taggant fluorescence signal indicative of exposure of the odometer taggant coating to the combustion flame.

23. The method of claim 22, wherein the in at least one bandwidth is 610 nm and the odometer taggant coating comprises europia doped yittria stabilized zirconia (YSZ:Eu).

24. An system for monitoring a combustion flame, comprising:

means for obtaining at least two output signals of the combustion flame in an OH emission band, each output signal having a different, overlapping bandwidth;

means for calculating a ratio of integrated intensities for each of the different overlapping bandwidths; and

means for using the ratio of integrated intensities to determine a temperature of the combustion flame temperature.

25. An system for monitoring a combustion flame, comprising:

means for monitoring an optical emission spectrum of the combustion flame in at least one bandwidth associated with at least one impurity; and

generating an impurity signal indicative of the presence or absence of the at least one impurity.

26. A flame temperature determining system, comprising:

a multiple element CCD-based spectrophotometer for simultaneously receiving light from at least two combustion flames, wherein the multiple element CCD-based spectrophotometer operates to monitor an optical emission spectrum in at least first and second discrete bandwidth ranges and generates a first intensity signal representative of the combined flame intensity in the first bandwidth range and a second intensity signal representative of the combined flame intensity in the second bandwidth range; and

a computer for

integrating the first intensity signal to generate a first integrated intensity,

integrating the second intensity signal to generate a second integrated intensity, and

calculating a ratio of integrated intensities of the first and second integrated intensities, and

using the ratio to determine a temperature of the combustion flame.

27. The system of claim 26, further comprising:

at least two optical fiber mounts positioned in relative proximity to each of the at least two combustion flames, the optical fiber mounts each including fiber optic elements for receiving light output by the combustion flames; and

an optical switch for receiving light from the fiber optic elements of the at least two optical fiber mounts and multiplexing the light together for transmission to the multiple element CCD-based spectrophotometer.